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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/533,345

04/29/2005

Ville Lappalainen

915-008.033

7365

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7590

06/23/2009

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EXAMINER

ROBERTS, JESSICA M

ART UNIT

PAPER NUMBER

2621

MAIL DATE

DELIVERY MODE

06/23/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/533,345	Applicant(s) LAPPALAINEN ET AL.	
	Examiner JESSICA ROBERTS	Art Unit 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1,4,5,7-13,16,17 and 19-24 is/are rejected.
- 7) ☒ Claim(s) 2,3,6,14,15 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>04/29/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 101

Claim(s) 1 is/are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent¹ and recent Federal Circuit decisions² indicate that a statutory “process” under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claim(s) recite a series of steps or acts to be performed, the claim(s) neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process. For example the method for transcoding digital images including the steps of “decoding of at least portions of a first image”, “obtaining first coefficients”, “quantization according to a second method”, “obtaining second coefficients”, “coding of the first coefficients”, and “obtaining at least portions of the second” is of sufficient breadth that it would reasonably be interpreted as a series of steps completely performed mentally, verbally, or without a machine.

The Applicants has provided no explicit and deliberate definitions to tie the method for transcoding digital images including the steps of “decoding of at least portions of a first image”, “obtaining first coefficients”, “quantization according to a second method”, “obtaining second coefficients”, “coding of the first coefficients”, and

¹ *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

² *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

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"obtaining at least portions of the second" to limit the steps to a particular apparatus or device.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1,4-5, 7-9, 11-13, 16-17, 19-21 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al., An Efficient JPEG to MPEG-1 Transcoding Algorithm in view of Fu et al., US-7,379,498.

4. Regarding **claim 1**, Wu teaches A method for transcoding digital images, comprising: decoding of at least portions of a first image coded according to a first method (JPEG DCT-based decoder, fig. 2(a), (b)), for obtaining first coefficients of a luminance component and chrominance components of the first image coded according to the first method (2.2 System considerations, pg. 448); combined inverse quantization

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according to the first method and quantization according to a second method (MPEG-1 encoder, fig. 2(a). Further, fig. 2, discloses the Q and Q-1,) of the first coefficients of the chrominance components of the first image coded according to the first method (fig. 1), for obtaining second coefficients of chrominance components (2.1 Skeletons of the transform domain JPEG to MPEG-1 format convert, pg. 448 and 449) of at least portions of a second image according to the second method having the same chroma format as the first image coded according to the first method (2.1 Skeleton of the transform domain JPEG to MPEG-1 format converter, pg. 448); and coding (fig. 1) of the first coefficients of the luminance component of the at least portions of the first image coded according to the first method (2.1 Skeleton of the transform domain JPEG to MPEG1 format converter, pg 448 and fig. 1, video input to JPEG encoder) and of the second coefficients of the chrominance components of the at least portions of the second image according to the second method (fig. 1), for obtaining at least portions of the second image decodable according to the second method (input to MPEG-1 decoder, fig. 1). Wu does not explicitly teach a by means of a chrominance quantization matrix of the first method for inverse quantization according to the first method and a luminance quantization matrix of the first method for quantization according to the second method

5. However, Fu teaches a means of a chrominance quantization matrix of the first method for inverse quantization according to the first method (fig. 1 element 22) and a luminance quantization matrix of the first method for quantization according to the second method (column 6 line 7-9 and table 1).

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6. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Fu with Wu for providing improved image processing.

7. Regarding **claim 4**, Wu (modified by Fu) as a whole teaches everything as claimed above, see claim 1. In addition, Wu teaches the method according to claim 1, further comprising: decoding of the at least portions of the second image decodable according to the second method (fig.1).

8. Regarding **claim 5**, Wu (modified by Fu) as a whole teaches everything as claimed above, see claim 1. In addition, Wu teaches the method according to claim 1, wherein the first image coded according to the first method is an JPEG image (fig. 2, input source JPEG compressed bitstream), and the second image coded according to the second method is an MPEG intra frame (fig. 2(b) element, MPEG-1 encoder and Algorithm 1 (all JPEG-compressed input images are converted into I pictures), 2. Bitrate reduction, pg. 450).

9. Regarding **claim 7**, Wu (modified by Fu) as a whole teaches everything as claimed, see claim 5. In addition, Wu teaches the method according to claim 5 wherein the decoding comprises: JPEG variable length decoding (fig. 2, entropy decoder) of the luminance component and the chrominance components of the JPEG image (2.1 Skeleton of the transform domain JPEG to MPEG-1 format converter, pg. 448); and

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JPEG run length decoding of the JPEG variable length decoded luminance component and chrominance components (fig. 2(a), (b)) , for obtaining quantized discrete cosine transform coefficients of a luminance component and chrominance components of the JPEG image (fig. 2 DCT).

10. Regarding **claim 8**, Wu (modified by Fu) as a whole teaches everything as claimed above, see claim 5. In addition, Wu teaches the method according to claim 5, wherein the coding comprises: MPEG run length coding of the quantized discrete cosine transform coefficients (fig. 2) of the luminance component of the JPEG image and of the quantized discrete cosine transform coefficients of chrominance components of a MPEG intra frame (fig. 2; and MPEG variable length coding of the result of the MPEG run length coding (fig. 2(a), VLC).

11. Regarding **claim 9**, Wu (modified by Fu) as a whole teaches everything as claimed above, see claim 5. Wu is silent in regards to the method according to claim 5, wherein MPEG-2 is used.

12. However, Fu teaches wherein MPEG-2 is used (fig. 1).

13. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Fu with Wu (modified by) for providing a more economical and versatile reconstruction of still picture images, column 1 line 20-21.

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14. Regarding **claim 11**, Wu (modified by Fu) as a whole teaches everything as claimed above, see claim 5. In addition, Wu teaches the method according to claim 5, wherein MPEG-1 is used (fig. 1-2(a), (b)).

15. Regarding **claim 12**, Wu (modified by Fu) as a whole teaches everything as claimed above, see claim 5. In addition, Wu teaches the method according to claim 5, wherein the chroma format of the JPEG image and the MPEG intra frame is 4:2:0. (If the color space used for JPEG can be converted into the color space into the color space used for MPEG-1 with linear operations, the conversion of both the color spaces can be done directly in the transform domain, but the cost may very high depending on the color space used in the JPEG. For avoiding this problem, only three color spaces are allowed in our format converter, i.e., YCbCr 4:4:4, YCbCr 4:2:2 and YCbCr 4:2:0., 2.2 System consideration, pg. 449).

16. Regarding **claim 16**, see the analysis and rejection made for claim 1 except this is a claim to a device for transcoding images with the same limitations as claim 1.

17. Regarding **claim 16**, see the analysis and rejection made for claim 4 except this is a claim to a device for transcoding images with the same limitations as claim 4.

18. Regarding **claim 17**, see the analysis and rejection made for claim 5, except this is a claim to a device for transcoding images with the same limitations as claim 5.

19. Regarding **claim 19**, see the analysis and rejection made for claim 7, except this is a claim to a device for transcoding images with the same limitations as claim 7.

20. Regarding **claim 20**, see the analysis and rejection made for claim 8, except this is a claim to a device for transcoding images with the same limitations as claim 8.

21. Regarding **claim 21**, see the analysis and rejection made for claim 9, except this is a claim to a device for transcoding images with the same limitations as claim 9.

22. Regarding **claim 23**, see the analysis and rejection made for claim 11, except this is a claim to a device for transcoding images with the same limitations as claim 11.

23. Regarding **claim 24**, see the analysis and rejection made for claim 12, except this is a claim to a device for transcoding images with the same limitations as claim 12.

24. Claims 10 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al., An Efficient JPEG to MPEG-1 Transcoding Algorithm in view of Fu et al., US-7,379,498 and in view of Son et al., US-7,159,233

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25. Regarding **claim 10**, Wu (modified by Fu) as a whole teaches everything as claimed above, see claim 5. Wu is silent in regards to the method according to claim 5, wherein MPEG-4 is used.

26. However, Son teaches where one example of such transcoding is the conversion of MPEG-2 content into MPEG-4 content that can be played on a graphic processor in set top terminals or personal computer (PC) terminal, column 3 line 34-38. Since Wu teaches the desire to transcode JPEG to MPEG-1, and it well recognized in the MPEG video compression art that coding algorithms for the MPEG1 and MPEG2 share similar algorithms, it is certainly considered obvious and within one skilled in the art to modify or replace the MPEG1 encoder within the JPEG to MPEG1 transcoder of Wu with the MPEG-4 encoder of Son.

27. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Son with Wu (modified by Fu) for providing improved image processing.

28. Regarding **claim 22**, see the analysis and rejection made for claim 10, except this is a claim to a device for transcoding images with the same limitations as claim 10.

Allowable Subject Matter

29. Claims 2-3, 6, 14-15 and 18 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

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The following is a statement of reasons for the indication of allowable subject matter.

The present invention as claimed involves a method for transcoding video data wherein the combined inverse quantization according to the first method and quantization according to the second method comprises: deriving of each of the second coefficients of chrominance components of the at least portions of the second image according to the second method as the multiplication of a corresponding coefficient of the first coefficients of the chrominance components of the first image coded according to the first method with a quotient between a corresponding element in the chrominance quantization matrix of the first method and a corresponding element in the luminance quantization matrix of the first method.

Conclusion

30. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

31. Brake et al., US-2003/0179937

32. Linzer et al., US-6,141,447

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JESSICA ROBERTS whose telephone number is (571)270-1821. The examiner can normally be reached on 7:30-5:00 EST Monday-Friday, Alt Friday off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on (571) 272-7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Marsha D. Banks-Harold/
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Examiner, Art Unit 2621